

Application Serial No. 10/624,820
Amendment dated March 20, 2009
Response to Final Office Action dated Oct. 20, 2008

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) A warehousing system for palletized cargo, said palletized cargo being sized to fill either two-abreast or singly the width of a standard dry van, said system comprising:

a feed conveyer for bringing said palletized cargo to or from said system;

a plurality of storage racks for storing said palletized cargo;

a loading/unloading conveyer for bringing said palletized cargo from or to at least one loading/unloading dock;

said feed conveyer, said storage racks and said loading/unloading conveyer each comprising an elongate, generally horizontal end portion having sufficient length to support rows of multiple pallets that form ~~individual~~ full loads of said palletized cargo; that will fill the length of a standard highway dry van;

a traveling conveyer for carrying said ~~individual~~ full loads of said palletized cargo;

said traveling conveyer comprising:

an elongate, generally horizontal deck having sufficient length to support said rows of multiple pallets that form said ~~individual~~ full loads that will fill the length of a standard highway dry van; and

means for propelling said rows of pallets in first and second generally horizontal directions relative to said elongate deck so as to be able to move said rows of multiple pallets that form said full loads of said palletized cargo simultaneously off either of first or second ends of said elongate deck; and

means for selectively moving said traveling conveyer, with said rows of multiple pallets that form said full loads of said palletized cargo supported on said elongate deck thereof, between:

(i) a location in which said elongate deck of said traveling conveyer is aligned longitudinally with said elongate end portion of said feed conveyer, for longitudinally receiving or discharging said rows of multiple pallets that form said

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~~individual full~~ loads of said palletized cargo simultaneously to or from said feed conveyor;

(ii) locations in which said elongate deck of said traveling conveyor is aligned longitudinally with said elongate end portions of said storage racks, for longitudinally receiving or discharging said rows of multiple pallets that form said individual full loads of said palletized cargo simultaneously from or to said storage racks; and

(iii) a location in which said elongate deck of said traveling conveyor is aligned longitudinally with said elongate end portion of said loading/unloading conveyor, for longitudinally receiving or discharging said ~~individual~~ rows of multiple pallets that form said full loads of said palletized cargo simultaneously from or to said loading/unloading conveyor[[]]

~~whereby said traveling conveyor is selectively moveable, with said rows of multiple pallets that form said individual loads of said palletized cargo supported on said elongate deck thereof, between positions in which said rows of multiple pallets can be received by said traveling conveyor longitudinally from or discharged by said traveling conveyor longitudinally to said elongate end portions of said feed conveyor, said storage racks, and said loading/unloading conveyor.~~

2. (original) The warehousing system of claim 1, wherein said storage racks are stacked in tiers at a plurality of elevations.

3. (previously amended) The warehousing system of claim 2, wherein said traveling conveyor further comprises:

means for elevating said deck of said conveyor to heights level with said storage racks in said stacked tiers.

4. (previously amended) The warehousing system of claim 3, wherein said means for elevating said deck of said conveyor comprises:

a scissor-jack mechanism mounted to said of said conveyor deck for selectively raising and lowering said deck to said heights level with said storage racks.

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5. (previously amended) The warehousing system of claim 3, wherein said means for selectively moving said traveling conveyor comprises:

- a wheeled chassis having said traveling conveyor mounted thereon; and
- at least one track for guiding said wheeled chassis between said locations in which said palletized cargo is received or discharged.

6. (original) The warehousing system of claim 1, wherein said feed conveyor further comprises:

- a branch portion that diverges from a main portion of said feed conveyor, for bringing said cargo directly to or from said loading/unloading conveyor without passing to said traveling conveyor.

7. (original) The warehousing system of claim 6, wherein said feed conveyor further comprises:

- means for selectively diverting said palletized cargo from said main portion of said feed conveyor onto said branch portion of said conveyor.

8. (original) The warehousing system of claim 7, wherein said means for selectively diverting said palletized cargo onto said branch portion of said feed conveyor comprises:

- a sweep arm pivotally mounted proximate a junction of said main and branch portions of said feed conveyor; and

- means for selectively extending said sweep arm from a retracted position in which said palletized cargo is permitted to pass along said main portion to said traveling conveyor, to an extended position in which said sweep arm redirects said cargo along said branch portion of said feed conveyor.

9. (original) The warehousing system of claim 6, wherein said branch portion of said feed conveyor comprises:

- a bypass segment connecting said branch portion of said feed conveyor and said loading/unloading conveyor; and

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means for displacing said bypass segment so as to form a gap between said branch portion of said feed conveyor and said loading/unloading conveyor, for receiving said traveling conveyor therein when said traveling conveyor is in said location for receiving or discharging said palletized cargo from or to said loading/unloading conveyor.

10. (original) The warehousing system of claim 1, wherein said at least one loading/unloading dock is an automated cargo loading/unloading system comprising:

a rigid, extensible dock member having an upper surface for supporting a load of palletized cargo;

means for extending said dock member into an interior of a transport vehicle so as to carry said load of palletized cargo into or out of said transport vehicle en masse; and

means for selectively restraining said load of palletized cargo within said interior of said vehicle as said extensible dock member is withdrawn therefrom.

11. (original) The warehousing system of claim 10, wherein said extensible dock member comprises:

a beveled leading edge for sliding under a load of palletized cargo within said interior of said transport vehicle as said dock member is extended therein.

12. (original) The warehousing system of claim 10, wherein said automated cargo loading/unloading system further comprises:

means for selectively transferring said palletized cargo from said loading/unloading conveyor to said extensible dock member.

13. (original) The warehousing system of claim 12, wherein said means for selectively transferring said palletized cargo from said loading/unloading conveyor to said extensible dock member comprises:

a push plate positioned proximate an inner end of said extensible dock member and on an opposite side of said loading/unloading conveyor therefrom; and

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means for selectively extending said push plate so as to push said palletized cargo off of said loading/unloading conveyor and onto said inner end of said extensible dock member.

14. (original) The warehousing system of claim 10, wherein said automated cargo loading/unloading system further comprises:

means for selectively transferring said palletized cargo from said extensible dock member to said loading/unloading conveyor.

15. (original) The warehousing system of claim 14, wherein said means for selectively transferring said palletized cargo from said extensible deck member to said loading/unloading conveyor comprises:

an unloading paddle mounted to said extensible dock member;

means for selectively moving said unloading paddle from a retracted position in which said unloading paddle is positioned beneath an upper surface of said extensible dock member, to a deployed position in which said unloading paddle projects above said upper surface of said extensible dock member proximate an outer end of said dock member; and

means for translating said unloading paddle in said deployed position from said outer end of said extensible dock member to proximate an inner end of said deck member, so as to push said palletized cargo off of said extensible dock member and onto said loading/unloading conveyor at said inner end of said dock member.

16. (previously amended) An automated cargo loading/unloading system, comprising:

a rigid, extensible dock member having an upper surface for supporting a load of palletized cargo;

means for extending said dock member into an interior of a transport vehicle so as to carry said load of palletized cargo into or out of said transport vehicle en masse;

means for selectively restraining said load of palletized cargo within said interior of said vehicle as said extensible dock member is withdrawn therefrom; and

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means for selectively transferring said palletized cargo from said extensible dock member to a loading/unloading conveyor, comprising:

an unloading paddle mounted to said extensible dock member;

means for selectively moving said unloading paddle from a retracted position in which said unloading paddle is positioned beneath an upper surface of said extensible dock member, to a deployed position in which said unloading paddle projects above said upper surface of said extensible dock member proximate an outer end of said dock member; and

means for translating said unloading paddle in said deployed position from said outer end of said extensible dock member to proximate an inner end of said deck member, so as to push said palletized cargo off of said extensible dock member and onto said loading/unloading conveyor at said inner end of said dock member.

17. (original) The automated cargo loading/unloading system of claim 16, wherein said extensible dock member comprises:

a beveled leading edge for sliding under a load of palletized cargo within said interior of said transport vehicle as said dock member is extended therein.

18. (previously amended) The automated cargo loading/unloading system of claim 16, further comprising:

means for selectively transferring said palletized cargo from a loading/unloading conveyor to said extensible dock member.

19. (original) The automated cargo loading/unloading system of claim 18, wherein said means for selectively transferring palletized cargo from said loading/unloading conveyor comprises:

a push plate positioned proximate an inner end of said extensible dock member and on an opposite side of said loading/unloading conveyor therefrom; and

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means for selectively extending said push plate so as to push said palletized cargo off of said loading/unloading conveyor and onto said inner end of said extensible dock member.

20. (canceled)

21. (canceled)

22. (original) The automated cargo loading/unloading system of claim 17, wherein said extensible dock member comprises:

a thin, rigid plate member.

23. (previously amended) The automated cargo loading/unloading system of claim 16, wherein said means for extending said dock member comprises:

drive means mounted to an inner end of said rigid plate member for translating said plate member into and out of said interior of a transport vehicle.

24. (original) The automated cargo loading/unloading system of claim 22, wherein said extensible dock member further comprises:

a plurality of rollers mounted to said rigid plate member and protruding slightly above an upper surface thereof for enabling said palletized cargo to move longitudinally along said plate member.

25. (original) The automated cargo loading/unloading system of claim 23, wherein said rollers are located at spaced distances from inner and outer ends of said rigid plate member, so as to form dead spots on said upper surface of said plate member for frictionally arresting longitudinal movement of said palletized cargo proximate said inner and outer ends thereof.

26. (previously amended) The automated cargo loading/unloading system of claim 24, wherein said extensible dock member further comprises:

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a plurality of ball bearing members mounted in said beveled leading edge of said dock member and protruding slightly above an upper surface thereof for facilitating penetration of said beveled edge under said palletized cargo in a transport vehicle.